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AFRL announces five new fellows

by Jill Bohn, AFRL Public Affairs

WRIGHT-PATTERSON AFB, Ohio —The Air Force Research Laboratory has announced five of its members to be recognized as AFRL Fellows.

This year's honorees are:

- Dr. Gordon Hager, Directed Energy Directorate, Kirtland AFB, N.M.
- Dean F. Kocian, Human Effectiveness Directorate, Wright-Patterson AFB, Ohio.
- Dr. Ruth Pachter, Materials and Manufacturing Directorate, Wright-Patterson AFB, Ohio.
- Dr. Stephan D. Price, Space Vehicles Directorate, Hanscom AFB, Mass.
- Dr. Harold Weinstock, Air Force Office of Scientific Research, Arlington, Va.

The five will be honored during the AFRL Fellows induction ceremony banquet October 24 at the United States Air Force Museum.

"We are extremely proud of the tremendous work our researchers do every day within the lab to support our Air Force mission," said Maj. Gen. Paul Nielsen, commander of AFRL. "This is our highest award in recognition of technical excellence and outstanding contributions to our research and development programs. These programs guarantee our Air Force will continue to be second to none."

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with commentary from SECAF James G. Roche and Brig Gen Ron Rand, Director of Public Affairs

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http://extra.afrl.af.mil/news/index.htm

Promising skies ahead

Gen. Michael E. Ryan

08/28/01 - WASHINGTON (AFPN) -- The following is a message from outgoing Air Force Chief of Staff Gen. Michael E. Ryan:

"From my perch, as I wrap-up my final tour, I see promising skies ahead for our Air Force...and it's because of you and your efforts.

"Despite tight budgets, you've arrested a stubborn four-year readiness decline. You've made our transition to an expeditionary aerospace force work, enhancing stability in the lives of Air Force members everywhere.

"Your direct feedback helped win Congressional support for many of our retention initiatives and the reestablishment of a full-benefit retirement system. Your voices have been heard and answered with across the board pay raises and targeted bonuses.

"You have made the personal choices to continue serving our nation, ensuring we're ready to protect America's interests around the world.

Your choices, your efforts, your dedication, your sacrifices continue to build the premier aerospace power this world has ever known. My family and I have been proud to serve with you.

"As General (John P.) Jumper assumes the office, he brings the deepest commitment to continued improvements in capability and quality of life for all our people. Together, he and Secretary (Dr. James G.) Roche, will provide superb leadership for America's Air Force in the years ahead. Thank you for your selfless service." **@**

Find additional Fe@tures on the web

AFRL accepts delivery of prototype digital watermarking camera and software

Air Vehicles Chief completes executive leadership program

Canteen 14's renovations geared to improve quality of life

Kirtland AFB building named after Major General Davis

by Rich Garcia, Directed Energy Directorate

KIRTLAND AIR FORCE BASE, N.M. – An Air Force officer, who served at Kirtland in the 1970s, 80s and 90s, advancing in grade to major general, was honored at Kirtland AFB on August 27th with the dedication of a research facility in his name.

The building being named for the general officially opened in June 2000 and is an $8.4 million, 29,000-square-foot research facility. Scientists are using the facility to do state-of-the-art research and development in chemical, electrical and hybrid lasers that can be used in air, ground, and space-based systems.

Maj. Gen. Richard W. Davis, who died while on active duty this February, was the subject of a memorial ceremony at the Air Force Research Laboratory's Directed Energy Directorate. At the time of his death, Gen. Davis was serving as the director of the National Security Space Architect, Office of the Assistant Secretary of Defense for Command, Control, Communications and Intelligence in Alexandria, Va.

With more than 30 years of active duty, he began his Air Force career at Kirtland AFB in a division that later became part of the Research Laboratory's Directed Energy Directorate. He returned to the Laboratory twice: in August of 1988 for nearly three years and in July of 1993 for two years. The last time, he served as commander of the Phillips Laboratory, which became part of the Research Laboratory in 1997.

The general served in a variety of Air Force positions that varied from assistant professor of physics at the U.S. Air Force Academy in Colorado Springs, Colo., to serving on a National Security Council-level interagency group providing guidance on nuclear weapons research and development. He also directed an eight-nation study on high-power microwaves, was a founding member of the Strategic Defense Initiative, and served on the vice president's joint Department of Defense-Department of Energy group looking into space exploration for the NASA.

Maj. Gen. Richard W. Davis

The Richard W. Davis Advanced Laser Facility is a two-story structure with six major laboratories and offices for approximately 50 people. Three of the laboratories are class 10,000 clean rooms and three are class 100,000 clean rooms. The facility also houses several smaller laboratories, a chemistry lab, an electronics lab and two conference rooms.

The facility was designed so that interior configurations could be rearranged to fit the needs of new experiments. Two of the laboratories are dedicated to chemical laser work, such as the chemical oxygen-iodine laser that was developed by directorate scientists. That laser is being used for the Airborne Laser –a laser-carrying jumbo jet that can destroy ballistic missiles soon after being launched. The other four laser laboratories are used for solid-state or electrical laser research. **@**

New web tool helps track military performance reports

by Jill Bohn, AFRL Public Affairs

WRIGHT-PATTERSON AFB, Ohio - Faced with the responsibility of managing a large volume of military performance reports and decorations, Air Force Research Laboratory's Human Resources Directorate, in conjunction with the contractor development team of SAI, has designed a web-based tool to make the process more timely and accurate.

The project, entitled Personnel Tracking and Information (PTI) System, supports customers who manage career-impacting documents for 1,200 of AFRL's enlisted and officer personnel.

The large volume of reports and decorations, combined with two successive consolidations of 10 laboratories into one, created numerous difficulties reconciling multiple processes with multiple stand-alone database applications at multiple locations.

"By eliminating defects and maximizing product efficiency they saved our customers many pains, resulting in quick acceptance and reduced customer support tasks," PTI project manager Capt. Dean Cherer said of the development team.

PTI's design incorporates a web enabled "spoke and hub" architecture that provides secure access to a central server. This allows for users to have end-to-end visibility into the status of any document being tracked in the system, and those who make inputs to the system to have access 24 hours a day to keep their data current. PTI uses the Air Force master database as its source for automatic updating of other personnel data in the system.

Performance reports and decoration packages can be located instantaneously using the PTI system. Built-in flags are used to alert users of late or deficient documents, while inefficient or inadequate processes can be more readily located and improved. The design demonstrates versatility by allowing each directorate to customize for their individual mission requirements.

"This system allows me to quickly assess my suspenses and keeps me updated as to where the reports are physically," said 1st Lt. Ivan Acosta, Squadron Section Commander for AFRL's Propulsion Directorate West at Edwards AFB.

SSgt. Sonya Smith, NCO in charge of the Commander's Support Staff at Kirtland AFB's Phillips Research Site uses PTI from an orderly room perspective and considers it to be "a welcome improvement."

"I can get the location of any report without having to call the tech directorate," said Smith. "This speeds up my response time when the status of a report is needed."

Another benefit of PTI is the ability to develop and report metrics on how the organization is accomplishing the reports and packages. Metrics can also be customized to analyze trends in certain areas as needed by AFRL senior leadership.

Additional program updates are being considered, to include enhanced personnel data like date of rank, level of professional education, and emergency contact data. **@**

Fellows story (from page 1)

Dr. Hager has been a leader in scientific innovation in the field of high power laser devices and has achieved national and international recognition. His work has been recognized with numerous patents for significant advances in laser technology. Among his accomplishments, he power scaled a subsonic chemical oxygen/iodine laser (COIL) to a record which still stands today; formulated the research program to demonstrate a supersonic COIL; developed a pulsed version of the COIL, which is being evaluated as a potential candidate for Airborne Laser illuminator laser; and demonstrated the first all-gas phase iodine laser.

Kocian is credited with being the Air Force champion of helmet-mounted tracker/display technology (HMT/D) from its early inception. These devices enable pilots to aim weapons using the natural abilities of their heads and eyes to track targets while displaying critical flight and targeting data directly on the visor. He has successfully overcome fundamental technology challenges in the integration of components into an effective, ejection-safe HMD. And he has established a recognized track record of rapport, trust and respect between the AFRL warfighters by tightly coupling their needs and requirements with his specific goals and accomplishments.

Dr. Pachter has established an international reputation in computational chemistry and materials science. Her research contributions established a personal reputation for interaction and Nuclear Magnetic Resonance (NMR) characterization in organic materials, and protein structure determination by using NMR. Dr Pachter's research and development have had a significant impact on laser eye protection, and space and sensor protection applications. Dr. Pachter has defined, led and conducted an extensive basic research activity in the design of novel optical materials for laser protection.

Dr. Price's research has had a profound influence on infrared astronomy and has made major contributions to the Air Force mission. He has been a leader in implementing state-of-the-art sensor and component technology and in the design and conduct of space based experiments. His pioneering, and sustained, contributions to infrared astronomy, space experimentation and numerical analysis have earned him international recognition. His major accomplishments and discoveries including conducting the first infrared surveys of the sky; defining the Infrared Celestial Backgrounds for military and civilian space based infrared sensors; and creating the Celestial Background Scene Descriptor, a suite of first principal physics based codes that images the celestial background over any user specified area, spectral band and detector size.

Dr. Weinstock is a recognized international expert in the field of superconducting (SQUID). He authored or co-authored over 20 scientific publications, edited or co-edited five books on applications of superconductivity and has been awarded two patents on applications of superconducting magnetometry to nondestructive evaluation (NDE). Some of the research he has sponsored includes a unique method for detection of hidden active corrosion and cracks in aircraft bodies; the fastest, most precise A/D converters in existence; sharp, low-loss electronic filters for secure communication and intelligence; the superconducting materials technology for compact, efficient power generators for DEW and magnets for MHD; and a new class of magnetic materials for power units, bearings and actuators in the More Electric Airplane.

The AFRL Fellows award selection committee considers both military and civilian scientists and engineers, comprising about 55 percent of the AFRL workforce of 5,400. To be eligible, participants must be assigned to AFRL for the past three consecutive years and have at least seven years of active federal service. The work recognized must have been performed at the laboratory or one of its predecessors and meet the following criteria:

- Discovered a factor, theory, etc. of important, fundamental, or of sufficient magnitude to warrant recognition in the scientific or engineering community as a pioneering breakthrough;
- Recognized as a national or international authority in one or more fields, including widespread recognition in the AirForce;
- Sustained high-level achievements in programs of extraordinary importance to AFRL, the Air Force or national defense;
- Continued significant personal contributions to the lab beyond normal expectations;
- Obtained an exceptional record of scientific and technical achievements, creativity and leadership, patents, publishing in referenced publications, organizational skills, and development of lab programs.

"We are pleased to welcome our newest fellows," Nielsen said. "They are scientifically accomplished leaders in the science and engineering arena as is evidenced by their imagination and foresight in their field of study." **@**

Researchers offer safer, high - capacity batteries

by Adrian DeNardo, Propulsion Directorate

WRIGHT-PATTERSON AFB, Ohio — Air Force Research Laboratory's Propulsion Directorate has created a new generation of safer, high-capacity batteries for military applications.

Scientists have developed lithium-ion batteries that could solve safety problems in commercial equipment.

Enhanced capabilities of portable electronic equipment, such as laptop computers, increase the power demand on their batteries. As a result, equipment manufacturers have turned to the rechargeable lithium-ion battery to power high-end laptop computers, camcorders and wireless telephones. These batteries produce more power, and are light and last longer than their nickel-cadmium or nickel-metal hydride counterparts.

Certain lithium-ion batteries included in these devices have shown a tendency to erupt in flames when overheated, which prompted major manufacturers to issue recalls on thousands of laptop computers.

It seems the culprit is in the battery electrolyte—the current-carrying component in these batteries.

Many commercial lithium-ion batteries use a highly flammable solvent as part of the electrolyte. While providing the necessary current, there are some drawbacks. The most critical drawback occurs if the battery electrolyte oxidizes during charging causing the battery to short out and fail. This is due to what scientists call a narrow "electrochemical window." Simply put, these high voltage lithium-ion batteries must have added electronic circuitry to keep voltages within a very narrow range to prevent oxidation and the resultant battery failure from occurring. **@**

Farewell to the Chief

by Brig. Gen. Ron Rand, Director of Public Affairs

September 4, 2001 —Thursday is a big day for our Air Force. At 9 a.m., Gen. Michael E. Ryan, who has been our chief of staff for the past four years, will retire and Gen. John P. Jumper will become our 17th chief of staff. It's an exciting and important moment in our history — the end of one era and the beginning of another. After all the farewells and thanks, General Ryan will depart, and amid all the welcomes and congrats, General Jumper will take the stick. His priorities as our top uniformed officer will be readiness, retention and transformation, and together with Dr. Jim Roche, our secretary, General Jumper will work hard to make sure we remain the world's greatest aerospace force.

In one of his final media interviews, General Ryan was asked what he thought his legacy would be. In typical fashion, he downplayed talk of his own accomplishments, focusing on those of the Air Force team instead. That's the way he is; for him, the Air Force, and Air Force people, come first, in every decision he makes and every action he takes. He leads us from that position, with clear vision for the future, abiding passion for our institution, and unbridled compassion for our people.

When he became chief of staff, General Ryan saw a need to return to our expeditionary roots, and embarked us on the transition to today's expeditionary aerospace force. He knew readiness and retention were our biggest near-term problems, and he set out to correct disturbing downward trends in both. Most importantly, he recognized that our strength is in our people -- that the best equipment in the world is just machinery without bright, dedicated, enthusiastic, patriotic, well-cared-for Americans to operate and maintain it. And he dedicated himself to making us one force, one family -- to taking care of our people.

It's our people he cares about the most -- every single one of them. In every crisis, and in every decision, he makes sure our first action is to take care, both institutionally and personally, of the people affected. His interest extends beyond the active duty force, to the Guard and Reserve, to our civilians and contractors, to our retirees, and -- especially -- to our families. It comes from his unshakable belief in the premise that we're an Air Force family and a family Air Force, and from his unbending commitment to the promise that we take care of own. For him, it's all about leadership.

General Ryan believes leadership is a team sport, that it should not be personalized, and that good ideas are best when they don't have a single identity ... so his leadership style focuses on group ideas and team accomplishments, rather than on him. He begins meetings with a request that everyone participate, because more input will result in better decisions, and because everyone working together is better and smarter than any one could be. He encourages collaboration and cooperation in all things, and sets the example in his teamwork with our secretary and with our sister services. And he's a great communicator.

The chief recognizes the importance of telling our story -- to our airmen, to the media, to the public, and to Congress -- and he personally tackles the big and tough communication challenges. He also believes leadership is all about communicating, so he restored the chain of command as the primary information source for Air Force people. He has one hard-and-fast rule: when telling our story, our credibility with public and internal audiences depends on openness and honesty -- absolute integrity and truth need to be our watchwords. Nothing more, nothing less. He calls it, "blabbing the truth."

In the last four years, we've become a much better Air Force, playing a much larger role on the world stage. We've built stability into our expeditionary operations ... arrested readiness ... restored our retirement ... worked retention and recruiting hard to maintain the quality of our force ... increased bonuses ... got pay raises ... fought for our people at every turn ... and so much more. General Ryan would tell you that's what the Air Force leadership team has been up to these past four years. That he would say that is the unique and selfless legacy of this third-generation airman, aviator, leader and patriot who has spent his whole life in the Air Force and who retires Thursday with more than 36 years of active duty service to this great nation of ours -- General Mike Ryan. **@**

A personal farewell to a friend and exceptional leader

An open letter from James G. Roche, Secretary of the Air Force

WASHINGTON (AFPN) — The Air Force bade farewell on Sept. 6 to a friend, an exceptional leader, and a champion of Air Force standards and quality of life. We also hailed on this day a new chief of staff, selected by President Bush and confirmed by the United States Senate, to preside over the total Air Force team as our highest uniformed leader.

Gen. Michael E. Ryan dedicated more than 36 years of his life to our Air Force — he sacrificed much and succeeded at all he did along the way. Our grateful nation and our superb Air Force are the beneficiaries of his exceptional leadership, his focus on improving quality of life for all airmen and their families, his innate sense of excellence, and his dedication to successfully transform us toward a fully expeditionary aerospace force.

His legacy is a bright and promising future for aerospace power and all airmen on the total Air Force team, including our active duty, Air National Guard, Reserve, retirees, veterans, and families. It has been an incredible honor and a pleasure for me to have had the opportunity to serve with Gen. Mike Ryan. To me, he epitomizes the leader's ethic: my mission; my men; and only then, myself.

Gen. John P. Jumper, our new chief of staff of the Air Force, brings an impressive background and broad experience to the job of helping to lead our total Air Force team onward in this new century. Somewhat like General Ryan's, his family ties to our service extend as far back as the Army Air Corps. His experience transcends both the Atlantic and Pacific Oceans, with more than 1,400 combat hours in two Southeast Asia tours, and two full assignments in Europe. Having already proven himself a wise counsel and superlative leader at Air Combat Command, I am truly looking forward to serving with General Jumper in the months and years ahead. Our bright future awaits. Together with everyone else on our team, General Jumper and I will work to pilot the journey that will take us there.

On behalf of the total Air Force team, I bid fond farewell with profound appreciation to Gen. Mike Ryan, and congratulate and welcome Gen. John Jumper, our 17th chief of staff of the Air Force. **@**

Net Index

Due to the number of submissions we receive, some sections of *news@**afrl*** are available exclusively on-line. The on-line version of the newsletter allows users to view the AFRL corporate calendar, news releases generated by AFRL headquarters, operating instructions, L@b L@urels and Roundups sections.

The L@b L@urels section of the electronic newsletter is dedicated to members of Air Force Research Laboratory who receive awards and honors. The Roundups section of the electronic newsletter keeps Air Force Research laboratory employees informed about contracts AFRL has awarded. Below is an index of articles one can find in each of these on-line sections.

L@b L@urels

Additional Features

- **IF Directorate's MSgt Rechiman earns IDEA award**
- **Gen. Lyles honors "youth of the Year" award**
- **Lockheed Martin honors AFRL and ASC's Power-by-Wire Designers**
- **General Nielsen addresses aerospace contractors group** *(pictured right)*
- **AFMC Commander tours AFRL Rome Research Site**

Roundups

- **Contract awarded for information assurance research**
- **Secure information network goal of Rome laboratory**
- **AFRL funds contracts and grants for university research**
- **AFRL Rome awards $4.9M fusion research contract**
- **Advance warning of computer attacks to be researched**

To view the full text of these and other articles visit the *news@**afrl*** page on the Internet at http://extra.afrl.af.mil/news/index.htm.

To submit L@b L@urels or Roundups from your directorate, send a query to AFRL Public Affairs at:

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